A complete administrative record of this consultation is on file in the Nevada Fish and Wildlife Office in Las Vegas. Please contact Michael Burroughs in the Nevada Fish and Wildlife Office in Las Vegas, at (702) 515-5230 if you have any questions.

Sincerely,

For Robert D. Williams
State Supervisor

Enclosure

cc:
Supervisory Biologist - Habitat, Nevada Department of Wildlife, Las Vegas, Nevada

FINAL BIOLOGICAL OPINION (File No. 84320-2008-F-0416)

A. Consultation History

In July 1991, DOE submitted a BA to the Service describing activities anticipated to occur at the NTS during fiscal years 1991 through 1995. On May 20, 1992, the Service issued a non-jeopardy programmatic biological opinion (File No. 1-5-91-F-225) to DOE for potential effects to the desert tortoise as a result of implementation of those activities. The Service concluded that proposed programmatic-level actions may result in disturbance of 250 acres of desert tortoise habitat and exempted incidental take for 25 desert tortoises (5 killed or injured and 20 harassed). DOE deposited $81,000 into the Section 7 Desert Tortoise Habitat Conservation fund to offset the disturbance of 250 acres of desert tortoise habitat at the rate of $324 per acre of disturbance. The fund balance was carried forward into the 1996 programmatic biological opinion described below.

In 1996, DOE submitted a BA to the Service for consultation that described programs, projects, and other activities that were anticipated to occur between 1996 and 2006. On August 22, 1996, the Service issued a non-jeopardy programmatic biological opinion (File No. 1-5-96-F-33) to DOE for potential effects to the desert tortoise as a result of implementation of actions anticipated to occur within the range of the desert tortoise on the NTS which superseded the 1992 biological opinion. The Service concluded that proposed programmatic-level actions may result in disturbance of up to 3,015 acres of desert tortoise habitat, and exempted take of 13 desert tortoises per year (3 injured or killed and 10 harassed) as a result of programmatic activities. The 1992 fund balance was carried forward into the 1996 programmatic biological opinion and was fully spent in 2005. The 1996 biological opinion is superseded by this biological opinion.

Since 1996, the Service issued two non-jeopardy biological opinions for activities that were outside the scope of the 1996 programmatic biological opinion. The first biological opinion was issued on June 24, 2005 (File No. 1-5-05-F-455), based on proposed actions associated with chemical release tests at Test Cell C on the NTS. No habitat was anticipated to be disturbed as a result of proposed activities. The Service concluded that up to six desert tortoises could be harassed as a result of the project. The second biological opinion was issued July 17, 2007, for proposed activities at the Device Assembly Facility (DAF) on the NTS. The Service concluded that the proposed project would not result in disturbance of desert tortoise habitat and exempted incidental take for seven desert tortoise (two injured or killed and five harassed). This biological opinion for the DAF will remain in effect and not be superseded by the programmatic biological opinion.

On July 2, 2008, the NNSA/NSO requested initiation of formal consultation for programmatic activities that may occur within the range of the desert tortoise on the NTS. The Service received NNSA/NSO's request on July 3, 2008, at which time formal consultation was initiated.

The Service extended the timeframe for this consultation by 60 days (ended January 10, 2009) by letter dated November 10, 2008.

B. Programmatic Consultations

This biological opinion was prepared in accordance with the July 16, 2003, draft guidance for programmatic-level consultations (Service 2003). The term "programmatic consultation" has become a generic term encompassing a broad category of section 7 consultations that evaluate the potential for Federal agency programs to affect listed and proposed species, and designated and proposed critical habitat. Such programs typically guide implementation of future agency actions by establishing standards, guidelines, or governing criteria to which future actions must adhere. At times the term *programmatic consultation* has been used to refer to consultations on a large group of similar actions (*e.g.*, a National Forest's timber harvest program for a particular year) as well as to refer to consultations covering different types of actions proposed within a large geographic area, such as a watershed. Such consultations can provide the benefit of streamlining the consultation process while leading to a more landscape-based approach to consultations that can minimize the potential "piecemeal" effects that can occur when evaluating individual projects out of the context of the complete agency program.

This programmatic biological opinion analyzes the potential effects of implementing NNSA/NSO's proposed actions on the NTS and develops the appropriate project-specific documentation that addresses the effects of individual projects. This programmatic biological opinion contains all of the elements found in a standard biological opinion. The format of this programmatic biological opinion conforms to the *appended programmatic consultation approach*, which will require that NNSA/NSO and the Service produce project-specific documentation that is physically appended to this programmatic biological opinion before the action occurs.

Project-Level Consultation under the Appended Programmatic Consultation Approach

As individual projects or actions are proposed under the appended programmatic consultation approach, NNSA/NSO will provide project-specific information that: (1) describes each proposed action and the specific areas to be affected; (2) identifies the species and critical habitat that may be affected; (3) describes the manner in which the proposed action may affect listed species; (4) describes the anticipated effects; (5) specifies, if appropriate, that the *anticipated effects from the proposed project are consistent with those anticipated in the programmatic biological opinion*; (6) describes proposed measures to minimize potential effects of the action; (7) describes any additional effects, if any, not considered in the programmatic consultation. On a limited, project-by-project basis, additional effects may occur in action areas that extend beyond the NTS, but are subject to Federal nexus as defined in 50 CFR 402.02 (activities or programs of any kind authorized, funded, or carried out, in whole or in part, by Federal agencies in the United States). A recommended form to append future actions is attached in Appendix A.

1. Program Descriptions

a. Defense Program

The primary mission of the NNSA Defense Programs at the NTS is to ensure the safety and reliability of the nation's nuclear weapons stockpile. The NTS has a long history of participating in the Stockpile Stewardship Program, including maintaining the readiness and capability to conduct underground nuclear weapons tests and conducting such tests if so directed by the President. Other aspects of stockpile stewardship include conventional high-explosives tests, dynamic experiments (including sub-critical experiments), and hydrodynamic testing.

The ongoing key NTS defense program-related activities include maintaining readiness to conduct full-scale nuclear testing, conducting underground nuclear weapons testing, handling damaged and foreign nuclear weapons, and conducting dynamic experiments (including sub-critical experiments). Only three Defense Program facilities occur in the range of desert tortoises on the NTS: Joint Actinide Shock Physics Experiment Facility (JASPER), Baker Facility, and the Device Assembly Facility (DAF).

The JASPER Facility (construction completed in September 1999) conducts shock physics experiments on special nuclear material and other actinide materials. JASPER generates small quantities of transuranic waste. Activities/tests are conducted within a building, and thus are not anticipated to affect desert tortoises.

The Baker Site Facility is a staging, assembly, and storage facility for explosives used at approved NTS locations. The facility is located at the Baker Site in NTS Area 27.

The DAF (Area 6) is a multi-structure facility where nuclear devices and high explosives can be assembled, disassembled or modified, staged, and component-tested. NNSA has constructed special facilities for handling plutonium and other special nuclear material at the DAF. NNSA relocated the principal Los Alamos National Laboratory Technical Area 18 operational activities involved in the research, design, development, construction, and application of experiments on nuclear criticality to the DAF. Operations in support of NNSA and other national missions have begun.

NNSA is currently developing plans for the use of DAF for limited nuclear weapons dismantlement activities. Currently, dismantlement of nuclear weapons occurs at the Pantex Plant in Texas. Waste would consist of high explosives that may be sent to the Explosive Ordnance Disposal Unit in Area 11 for treatment and low-level radioactive waste (rags, etc.) that would be disposed at the Area 5 Radioactive Waste Management Site (RWMS). Plutonium pits and highly enriched uranium would be stored for a short time until they could be transferred to an off-site NNSA facility. Some non-nuclear components may be cleaned and recycled, if appropriate.

DOE anticipates that the following Defense Program projects may occur within the timeframe of this consultation and will be appended to this programmatic biological opinion in accordance with the programmatic consultation guidance (Service 2003):

- Consolidated Plutonium Center
- Consolidated Weapons Program special nuclear material storage
- Consolidated hydrotesting – this was originally proposed as the Advanced Hydrotest Facility
- Consolidated major environmental testing (facilities for putting environmental stresses [heat, cold, vibration, etc.]) on nuclear weapons components
- NNSA flight test operations currently performed at the Tonopah Test Range
- Consolidated Nuclear Production Center

b. Waste Management Program

The primary mission of the Waste Management Program is to serve as a low-level and mixed low-level radioactive waste disposal facility in support of DOE. The NTS provides disposal capability for NTS-generated waste and other DOE-approved waste generators. Only explosives waste may be treated/disposed at the Area 11 Explosive Ordnance Unit, which is at or north of the northern limit of tortoise distribution on the NTS; all other hazardous wastes are disposed at the Radioactive Waste Management Sites (RWMS) in Area 3 and Area 5. All of Area 3 is outside the range of the desert tortoise. Only two of the existing waste management facilities, Area 5 RWMS and Area 23 Solid Waste disposal site, occur in the range of desert tortoises on the NTS. The Area 5 RWMS site is within an exclusion area identified in the 1996 programmatic biological opinion since no desert tortoises have been observed in that area of Frenchman Flats.

Existing waste management facilities and activities are expected to largely continue over the next five years. The NTS will continue to be a regional disposal center for low-level and mixed low-level radioactive waste generated throughout the DOE Complex. Current disposal operations will continue, as will other management operations such as temporary waste storage and confirmatory waste examination.

DOE anticipates that the following Waste Management Program projects may occur within the timeframe of this consultation and will be appended to this programmatic biological opinion in accordance with the programmatic consultation guidance (Service 2003):

- *Treatment of RCRA or Toxic Substances Control Act wastes.* With the exception of wastes treated at the Area 11 Explosive Ordnance Disposal Unit, DOE is not permitted to treat hazardous (RCRA) waste, the hazardous (RCRA) portion of mixed low-level

radioactive waste, or Toxic Substances Control Act waste at the NTS. Several offsite generators have requested that the NTS provide in-cell macro-encapsulation for hazardous or toxic waste.

- *Disposal of low-level radioactive waste.* The NTS is being considered as one of eight candidate DOE sites for disposal of such waste, along with generic commercial disposal facility options in arid and humid environments.
- *Transloading of waste shipments to the NTS.* There are no transloading facilities for low-level or mixed low-level radioactive waste operating in the State of Nevada; however six commercial vendors have expressed interest in offering transloading services. NTS has significantly reduced the volume of legacy transuranic and mixed transuranic waste at the NTS by repackaging, characterizing, and shipping the stored waste offsite. The NTS intends to ship nearly all the remaining legacy waste for offsite disposition in 2008. Operations at JASPER annually result in about 810 cubic feet of newly generated transuranic waste that will also be sent for offsite disposition.

NNSA proposes five potential low-level radioactive waste streams; however, only two of these waste streams have been disposed at the NTS: (1) Low-level radioactive waste generated by Battelle Columbus, and (2) thorium nitrate waste from the U.S. Department of Defense.

NTS-approved generators have provided forecasts of low-level and mixed low-level radioactive wastes that are planned for NTS disposal (NNSA/NSO 2008b). Other potential low-level and mixed low-level radioactive waste streams, however, have been identified that are not currently planned for NTS disposal but may be considered for NTS disposal. The actual generation of these waste streams is uncertain or there are options for their disposition off the NTS. These waste streams are listed below:

- U.S. Department of Defense waste from accidents involving nuclear weapons
- U.S. Department of Defense and DOE strontium-90 radioisotope thermoelectric generators other than those in current forecasts
- Depleted uranium hexafluoride conversion waste
- U.S. Department of Defense cleanup of facilities or sites containing depleted uranium
- Site cleanups at former Manhattan Project and supporting facilities
- Former research reactor site cleanups
- Disposition of uranium-233 waste from Oak Ridge National Laboratory
- DOE Naval Reactors Program waste
- Waste from environmental restoration at Los Alamos National Laboratory

c. Environmental Restoration Program

The Environmental Restoration Program is committed to assessing and remediating contaminated sites, complying with all applicable environmental regulations and statutes, and protecting the health and safety of workers and the public. Refer to the Supplemental Analysis (NNSA/NSO 2008b) for details on project areas and activities.

d. Nondefense Research and Development

Consistent with past practices, NNSA/NSO supports a variety of research and development activities in cooperation with universities, industry, and other Federal agencies. Examples include safety aspects of handling and responding to incidents involving hazardous materials and evaluation of solar energy technologies and options.

Two facilities are operated by the Desert Research Institute; the University of Nevada, Las Vegas; and the University of Nevada, Reno. These are the Nevada Desert Free Air Carbon Dioxide Enrichment Facility and the Mojave Desert Global Change Facility. Since operations began in 1997, the Nevada Desert Free Air Carbon Dioxide Enrichment Facility has been conducting a 20-year study on the impact of elevated carbon dioxide on the Mojave Desert ecosystem. At the Mojave Global Change Facility, research on effects of other predicted climate changes are underway, specifically nitrogen deposition, crust disturbance, and increased precipitation.

A solar power plant has been proposed for the Solar Enterprise Zone at the NTS in Area 22 that would be a commercial, utility-scale solar power plant. The power plant could produce up to 200 megawatts of electricity. The proposed technology would concentrate solar power using tracking/positioning arrays. The power generated would supply the NTS with the majority of its required power and excess power would be distributed to Nevada utilities. Power transmission would be via the Mercury sub-station and existing connected transmission lines, although transmission line upgrades may be required. Additional 200-megawatt power plants may be added in modular form for future development. Planning, development, and construction prior to operation are expected to take 3 to 5 years. NNSA/NSO requests that the solar energy project be appended to this programmatic biological opinion (separate Service response).

e. Work-for-Others Program

The Work-for-Others Program involves the shared use of certain NTS and Tonopah Test Range facilities and resources with other Federal agencies, such as the U.S. Department of Defense. Activities may require large, remote, and secure areas, and include various military training exercises and research and development projects.

The Nonproliferation Test and Evaluation Complex (originally called the Liquified Gaseous Fuels Spill Test Facility and then the HazMat Spill Center) conducts research on the behavior and safety aspects of chemical handling and releases including releases due to explosive detonations. The Nonproliferation Test and Evaluation Complex serves as a chemical and biological test center. Such work includes research, development, testing, and evaluation of applied technologies; training and exercises; and/or integration of these activities. In 2004 the NTS expanded its capabilities to conduct tests and experiments involving the release of biological simulants and low concentrations of chemicals at various NTS locations under the Work-for-Others Program.

Activities Using Biological Simulants and Releases of Chemicals at the NTS. One of the NTS roles is to provide the capability to conduct chemical release tests to assess risks from accidental releases of hazardous materials, to provide data on sensor development, and to provide first responder training. In 2004, NNSA/NSO evaluated impacts associated with tests and experiments involving the release of biological simulants and low concentrations of chemicals at various locations within the NTS. Additionally, NNSA/NSO evaluated a modification to the release parameters under which the Nonproliferation Test and Evaluation Complex (then called the HAZMAT Spill Center) operated at the time. The activities involve no construction, permanent land disturbance, or land use changes. There has been an average of approximately 8 to 16 campaigns per year with approximately 10 testing days per campaign.

Radiological/Nuclear Countermeasures Test and Evaluation Complex (Complex). The Department of Homeland Security requested that NNSA/NSO construct, operate, and maintain the Complex for their use. The Complex, currently under construction, is an isolated complex located in Area 6 south of the DAF that supports capabilities for post bench-scale testing of radiological and nuclear detection devices that may be used in transportation-related facilities. Testing and evaluation activities include prototype detector testing and evaluation; systems testing and evaluation; performance standards validation; demonstration of prototype detectors, systems, and performance standards; verified threat demonstration; concept of operations evaluation and verification; and training.

f. Infrastructure Development

NNSA/NSO proposes upgrades to buildings, power distribution and transmission system, water distribution system, roads, communication system, and security at NTS. NNSA/NSO determined that up to 100 acres of disturbance may occur as a result of infrastructure projects during the 10-year term of this biological opinion.

In addition to infrastructure upgrades, NNSA/NSO will perform routine maintenance activities on buildings, power distribution and transmission systems, water distribution systems, wastewater systems, roads, and communication systems. Routine maintenance activities will include mowing and/or grading of road edges along paved road segments in desert tortoise habitat on Mercury Highway, Jackass Flats highway, Cane Spring road, and the 5-01, 5-05 and 5-07 roads. This routine work is designed to remove vegetation that may cause potential fire hazards and to ensure the integrity of the road edges. Routine maintenance activities also include repairing potholes and chip-sealing the road surfaces as needed.

Additional routine maintenance activities include repairs to existing public water system distribution lines located on previously-disturbed land within desert tortoise habitat. Routine maintenance activities and repairs are also conducted on existing wastewater systems including leachfields and sewer lines which are located on previously-disturbed land within desert tortoise habitat.

Routine maintenance activities are also performed on components of the NTS power grid. This includes replacing power poles that are damaged and upgrading of substations. To maintain and upgrade communications on the NTS, a new fiber optic line will be buried from the NTS border at U.S. Highway 95 into Mercury. This will be within the current utility corridor along Mercury Highway. These activities should occur in previously existing disturbances so no new desert tortoise habitat will be lost.

2. Proposed Programmatic-Level Measures to Minimize Potential Effects

NNS/NSO proposes to minimize the effects of ongoing and proposed projects and activities on the desert tortoise by implementing the following measures (NNSA/NSO 2008a):

a. All proposed land-disturbing activities within desert tortoise habitat on the NTS will be reviewed to ensure compliance with the Act and NNSA environmental policies. As part of this review, pre-activity surveys will be conducted at proposed project sites to determine the presence of the desert tortoise. Whenever possible, NNSA/NSO will modify the design or location of a project when it will impact the survival of the desert tortoise or may result in the incidental take of a desert tortoise.

b. A tortoise biologist or environmental monitor will be onsite during all phases of project construction when the project is located within desert tortoise habitat classes low or moderate. This will ensure that construction activities will not inadvertently harm desert tortoises.

c. All NNSA/NSO and contractor personnel working on the NTS in tortoise habitat will complete the Desert Tortoise Conservation Education Program. The program provides information relative to the occurrence of the desert tortoise on the NTS, the threatened status of the species, the definition of "take," the potential for impacts to the tortoise, the potential penalties for taking a threatened species, and the procedures for protecting tortoises.

d. Project personnel will halt activities, if possible, when the continuation of such activities may endanger a desert tortoise or if a tortoise is found on a project site. An on-call biologist will be contacted and will respond to the sighting within one hour of notification during normal operating hours. Project activities will resume after the on-call biologist assesses the situation and takes appropriate action to avoid or minimize the direct impact to the animal.

e. Vehicle traffic is restricted to existing paved, graded, or utility access roads by NNSA/NSO administrative policy. Under this policy vehicles will not be driven off existing roads in non-emergency situations unless authorized by NNSA/NSO. For security exercises and other approved non-routine events, off-road travel may be required.

f. All vehicles will be driven at speeds within posted speed limits on existing roads and will not exceed 15 miles-per-hour (mph) within project boundaries. Any tortoise observed in harm's way on a paved road will be moved off the road in the direction it was going in accordance with Service tortoise handling procedures.

g. NNSA/NSO will implement a litter-control program during outdoor program activities that will include the use of covered, raven-proof trash receptacles; disposal of edible trash in trash receptacles following the end of each work day, and disposal of trash in a designated sanitary landfill at the end of each work week. Material placed in a sanitary landfill will be covered daily when the landfill is open, as per NNSA/NSO standard operating procedures.

h. NNSA/NSO submitted a habitat reclamation plan to the Service that describes the methods of stabilizing and revegetating sites (DOE 2004). The goal of habitat reclamation is to establish a stable, non-eroding soil surface. The habitat reclamation plan for the NTS was approved by the Service and may serve as an alternative to payment into the Clark County Habitat Conservation Fund. DOE has paid the appropriate amount of remuneration fees for habitat disturbance through calendar year 2007.

When a disturbance occurs in desert tortoise habitat the disturbance may be reclaimed following the completion of the activities. Native perennial and annual plants, including forage species of desert tortoises on the NTS (Rakestraw *et al.*, 1995), will be used in the reclamation process as much as possible. The goals of revegetation will be to minimize soil loss and to restore native vegetative cover so it is similar to surrounding native land. The revegetation of sites will hasten plant succession. Successful reclamation within tortoise habitat will restore disturbed habitat to suitable tortoise habitat.

D. Status of the Species/Critical Habitat- Rangewide

The rangewide status of the desert tortoise and its critical habitat consists of information on its listing history, species account, recovery plan, recovery and critical habitat units, distribution, reproduction, and numbers. This information is provided on the Service's website at: *http://www.fws.gov/nevada/desert%5Ftortoise/dt_life.html.* This biological opinion is based on the October 22, 2008, status document online. If unavailable, contact the Nevada Fish and Wildlife Office in Las Vegas at (702) 515-5230 and reference File No. 84320-2008-F-0416.

E. Environmental Baseline

1. Status of the Desert Tortoise in the Action Area

DOE estimated the relative abundance of desert tortoises within selected Ecological Landform Units (ELU) by walking tortoise sign-survey transects (DOE 1998). The transect technique has

been used to determine the relative abundance of desert tortoise throughout the range of this species in the United States (Berry and Nicholson 1984; Luckenbach1982; Karl 1980; Berry 1986). An ELU is an area with similar vegetation, slope, aspect, and soils. A total of 206 ELUs were surveyed for desert tortoises within desert tortoise habitat previously characterized as unknown in the 1996 programmatic biological opinion. Transects lengths were adjusted to reflect sampling 2 percent of the area within each ELU. A total of 332 transects were walked totaling 552 miles with 281 tortoise sign found consisting of: 246 burrows, 14 scat, 12 carcasses, 7 live tortoises, and 2 egg fragments. An average of 0.2 sign was found per mile walked which was the exact same value as the average amount of sign found on the 740 miles of transects walked in the 1980s (EG&G/EM 1991). Tortoise sign found was recorded and a classification of abundance was calculated for all transects surveyed using a relationship of sign and density of tortoises described by Karl (1981).

ELUs on the NTS were classified as having a desert tortoise abundance ranging from very low or none to moderate (Figure 2). More than 68 percent of the area sampled (140 ELUs) had less than 0.25 sign found per mile. Thirty-one percent of the area (63 ELUs) had from 0.25 to 0.92 sign per mile (low classification) and only 1 percent of the area (3 ELUs) had more than 0.93 sign found per mile (moderate classification). Based on all previous transect studies on the NTS the relative abundance of desert tortoises is generally very low.

Figure 2. Desert tortoise relative abundance on the NTS.

In 1993, the density of tortoises on the NTS was sampled on three 0.39 square mile (mi^2) plots designed according to the guidelines described in Appendix A of the Draft Recovery Plan for the Desert Tortoise (Mojave Population) (Service 1993). Six tortoises were found within these plots; two in one plot and four in another (Mueller and Zander 1994). Only one live tortoise has been observed during clearance surveys for construction projects in fiscal years 1993 through 2007.

Desert tortoises generally occur throughout the southern one-third of the NTS (Figure 1) and are more common in bajadas and lower slopes of southern mountains and rare or absent from the lower basins particularly in Frenchman flats. The northern boundary for the desert tortoise on NTS occurs between elevations of approximately 3,900 feet and 4,880 feet. The vegetation in the boundary region is dominated by blackbrush (*Coleogyne ramosissima*), spiny hopsage (*Grayia spinosa*), and Anderson wolfberry (*Lycium andersonii*).

Potential project areas which are occupied by desert tortoises and covered by this BA occur in the Mojave Desert portion of the NTS. The dominant vegetation types occurring on the NTS are described by Ostler *et al.* (2000) and Wills and Ostler (2001). The southern areas of the NTS that are occupied by desert tortoises are dominated by creosotebush (*Larrea tridentata*), white bursage (*Ambrosia dumosa*), and blackbrush (Beatley 1976; Ostler *et al.*, 2000).

2. Factors affecting the desert tortoise in the action area.

The NTS occupies 1,375 mi^2 of land in southern Nye County, Nevada, making it one of the largest restricted access areas in the United States. The NTS has been used for underground nuclear testing and for testing the effects of nuclear weapons on military communications systems, electronics, satellites, sensors, and other materials. The secure nature of the NTS restricts recreational or off-road driving activities. Based on 1990 satellite imagery, NNSA/NSO estimates that approximately 91.5 mi^2 of land on the NTS has been previously-disturbed (Wills and Ostler 2001). This disturbance represents about 6.8 percent of the total area of the NTS.

The area where activities may impact desert tortoises are in the southern one-third of the NTS in Areas 5, 6, 14, 22, 23, 25, 26, 27, and 29 (Figure 1). Prior disturbance of desert tortoise habitat occurred under biological opinions previously described. DOE submitted annual reports that track the amount of habitat disturbance by year which is summarized in Table 2. To date no desert tortoises have been reported killed during construction activities on the NTS.

Mechanical disturbance of desert soils may cause: (1) changes in annual and perennial plant production and species composition including introduction of non-native plants, including noxious weeds, or increases in the area of distribution of weeds; (2) outright soil loss due to increased rates of water and wind erosion; (3) reduced soil moisture; (4) reduced infiltration rates; (5) changes in soil thermal regime; and (6) compaction or an increase in surface strength (Adams, *et al.* 1982; Biosystems 1991; Burge 1983; Bury 1978; Bury and Luckenbach 1983 and 1986; Davidson and Fox 1974; Hinkley *et al.* 1983; Nakata 1983; Vollmer *et al.* 1976; Webb 1983; Wilshire 1977 and 1979; Wilshire and Nakata 1976; Woodman 1983). When the soil surface is exposed by vehicular activity (e.g., off-highway vehicles), the thermal insulation provided by the vegetative cover is decreased, which results in increased daytime temperatures. Higher temperatures decrease the soil moisture, which causes soil temperature to increase further because less heat is required to vaporize the water present. Revegetation is inhibited as a result of these processes (Webb *et al.* 1978).

Although some adverse effects are anticipated, most effects to the desert tortoise that would occur under these two programs will be beneficial to the species. These effects include long-term improvement of plant species diversity (including food sources); long-term reduction in erosion; long-term increased habitat quality; increased tortoise abundance and distribution through habitat enhancement; decreased potential for future alien plant invasions; and decreased wildfire potential.

5. **Infrastructure construction effects.** Utility and energy infrastructure cause linear impacts to tortoise populations and may have levels of impacts well beyond those of many point sources of impacts (Boarman 2002a). In a retrospective evaluation of results of 234 biological opinions in California and Nevada (LaRue and Dougherty 1999), 80 percent (47/59) of the tortoises reportedly killed in California and Nevada were killed along utility corridors. Considerable habitat destruction or alteration occurs when pipelines and transmission lines are constructed and the impacts are repeated as maintenance operations or new pipelines or power lines are placed along existing corridors. Trenches opened for laying or maintaining pipes may serve as traps for tortoises and other animals (Olson *et al.* 1993).

Ravens use transmission towers as well as other anthropogenic structures as nest sites which threaten small tortoises in the area surrounding the nest site (Boarman 2002b). The presence of transmission towers in areas otherwise devoid of other raven nesting substrates (*e.g.*, Joshua trees, palo verdes, cliffs), may introduce heavy predation to an area previously immune to such predation (Boarman 1993). Most raven predation on tortoises appears to occur during the raven breeding season (Boarman 2002b). By one estimate, ravens probably do most (75 percent) of their foraging within one-quarter mile of their nest (Sherman 1993) and raven predation pressure is notably intense near their nests (Kristan and Boarman 2001). Therefore, ravens nesting on transmission towers,

where no other nesting substrate exists within one-half mile, may significantly reduce juvenile tortoise populations within one-quarter mile of the corridor, but this effect is quite localized.

Linear construction projects can negatively affect desert populations. Studies suggest that differences in the extent of the threat are related to the scale of the project, the ability of crews to avoid disturbing burrows, and timing of construction to avoid peak activity periods of tortoises (Boarman 2002a). In addition to the discrete disturbance points formed by towers and lines, maintenance roads and repeated operations can (1) introduce continuous sources of disturbance and (2) provide potential sites for invasion of exotic species.

G. Cumulative Effects

Cumulative effects are those effects of future State or private activities, not involving Federal activities that are reasonably certain to occur within the action area of the particular Federal action subject to consultation pursuant to section 7 of the Act. Cumulative effects do not include future Federal activities that are physically located within the action area of the particular Federal action under consultation.

Lands within the action area are federally managed and non-Federal actions are not proposed or anticipated to occur within the action area. Therefore, any actions on these lands would be subject to consultation under section 7 of the Act.

H. Conclusion

After reviewing the current status of the species, the environmental baseline for the project area, the effects of the proposed action, and the cumulative effects, it is the Service's biological opinion that implementation of programmatic activities as proposed in NNSA/NSO's BA and Supplemental Analysis is not likely to jeopardize the continued existence of the threatened Mojave population of the desert tortoise or adversely modify any designated critical habitat for the species.

We have reached this conclusion based on the following assumptions:

1. Less than 1 percent of the total habitat for the desert tortoise population occurs on the NTS, of which a small fraction will be disturbed by proposed program activities.

2. The overall abundance of desert tortoises on the NTS is classified as very low.

3. NNSA/NSO will implement measures to minimize potential effect to the desert tortoise including the requirement for all personnel who work on the NTS to complete the Desert Tortoise Conservation Education Program and be educated as to desert tortoise

protection, importance, conservation, as well as penalties associated with collecting, harassing, killing, or injuring tortoises.

4. NNSA/NSO may reclaim any newly disturbed areas to minimize habitat loss, where possible.
5. No critical habitat will be disturbed as a result of proposed NNSA/NSO activities.

INCIDENTAL TAKE STATEMENT

A. Incidental Take for Programmatic Consultations

Each NNSA/NSO action that may result in incidental take must have an incidental take statement, whether the action is the adoption of a strategy for developing future projects or the implementation of specific activities under the strategy. The take anticipated as a result of a specific action would be a subset of the programmatic incidental take statement. Though the intent in the appended programmatic approach is for the programmatic incidental take statement to contain all necessary reasonable and prudent measures and associated terms and conditions, due to the lack of available information regarding the specifics of individual projects, it may be necessary to develop project-specific reasonable and prudent measures and terms and conditions to ensure the minimization of the impacts of the incidental take associated with the specifics of each individual project. However, if this is the case, the Service would carefully consider whether the individual proposed project is beyond the scope of the programmatic consultation.

Section 9 of the Act, as amended, prohibits take (harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect, or attempt to engage in any such conduct) of listed species of fish or wildlife without a special exemption. "Harm" is further defined to include significant habitat modification or degradation that results in death or injury to listed species by significantly impairing behavioral patterns such as breeding, feeding, or sheltering (50 CFR § 17.3). "Harass" is defined as actions that create the likelihood of injury to listed species to such an extent as to significantly disrupt normal behavior patterns which include, but are not limited to, breeding, feeding, or sheltering (50 CFR § 17.3). Incidental take is any take of listed animal species that results from, but is not the purpose of, carrying out an otherwise lawful activity conducted by the Federal agency or applicant. Under the terms of sections 7(b)(4) and 7(o)(2) of the Act, taking that is incidental to, and not intended as part of the agency action, is not considered a prohibited taking provided that such taking is in compliance with the terms and conditions of this incidental take statement.

The Service hereby incorporates by reference the conservation measures proposed by NNSA/NSO from the *Description of the Proposed Action* into this incidental take statement as part of these terms and conditions to be applied to future appended actions, as appropriate. Terms and conditions for actions covered under, or appended to, this opinion: (1) modify the measures proposed by NNSA/NSO, or (2) specify additional measures considered necessary by

the Service. Where action-specific terms and conditions (*i.e.*, terms and conditions developed for each action to be appended and covered under this programmatic opinion in the future) vary from or contradict the minimization measures proposed under the *Description of the Proposed Action* or general terms and conditions below, the action-specific terms and conditions shall apply. The measures described below are general in nature and may or may not apply to future actions proposed for appendage to this programmatic biological opinion. Terms and conditions that are specific to future NNSA/NSO projects or actions are nondiscretionary and must be implemented by NNSA/NSO so that they become binding conditions of any grant or permit issued to the applicant, as appropriate, in order for the exemption in section 7(o)(2) to apply.

NNSA/NSO has a continuing duty to regulate the activity that is covered by this incidental take statement as long as the affected area is retained in Federal ownership and/or control. If NNSA/NSO (1) fails to require the project proponent to adhere to the action-specific terms and conditions of the incidental take statement through enforceable terms that are added to the permit or grant document, and/or (2) fails to retain oversight to ensure compliance with action-specific terms and conditions, the protective coverage of section 7(o)(2) may lapse.

B. Amount or Extent of Take Exempted

Based on the analysis of impacts provided above, history of effects from similar actions including the previous programmatic biological opinion covering the same action area, anticipated scope of all future actions, and minimization measures proposed by NNSA/NSO, the Service anticipates that the following take of the listed species could occur as a result of the proposed action at the programmatic level. The Service anticipates that the take of listed species that results from these actions would typically fall under purview of Section 10 of the Act following the transfer of ownership.

To ensure that the protective measures are effective and are being properly implemented, NNSA/NSO shall contact the Service in a timely manner (*e.g.*, within 24 hours) if a desert tortoise is killed or injured as a result of any activity covered under this biological opinion or on NTS road. Upon locating a dead or injured desert tortoise within the action area, notification must be made to the Nevada Fish and Wildlife Office at (702) 515-5230. At that time, the Service and NNSA/NSO shall review the circumstances surrounding the incident to determine whether additional protective measures are required. The non-mortality/injury threshold is intended to determine whether certain activities or circumstances may be affecting desert tortoises more substantially than we anticipated.

Based on desert tortoise population density estimates, anticipated extent of habitat disturbance, type of activities anticipated, anticipated effects to the desert tortoise, history of incidental take for the NTS, and scope of proposed activities at the program level, the Service anticipates that the following incidental take of desert tortoise may occur over the 10-year term of this biological opinion:

Table 3. Habitat disturbance limits and incidental take exempted by program.

PROGRAM	MAX. NO. ACRES IMPACTED	MAX. NO. TORTOISES ANTICIPATED TO BE INCIDENTALLY TAKEN: KILLED/INJURED	OTHER[1]
Defense	500	1	10
Waste management	100	1	2
Environmental restoration	10	1	2
Nondefense research and development	1500	2	35
Work-for-others	500	1	10
Infrastructure development	100	1	10
Roads	0	15[2]	125
TOTALS	2710	22	194

[1]All desert tortoises found in harm's way may be taken by harassment which includes capture, displacement, relocation, and disruption of behavior. The Service provides an estimate for the number of desert tortoises anticipated to be non-lethally taken at the programmatic level, however, action- or project-specific take will be exempted for each appended action. Further, the Service determined that these tortoises will remain in the wild and serve their role for recovery; the effects to these animals will be minimal and short-term.

[2]No more than 4 desert tortoises killed during any calendar year and 15 during the term of this biological opinion.

In addition, the Service estimated that over the 10-year term of this biological opinion, no more than two tortoise nests with eggs per year may be excavated and relocated, or incidentally destroyed if not found during clearance surveys.

C. Effect of Take

In the accompanying biological opinion, the Service determined that this level of anticipated take is not likely to result in jeopardy to the desert tortoise, or destruction or modification of critical habitat.

D. Programmatic Reasonable and Prudent Measures with Terms and Conditions

The Service believes that the following reasonable and prudent measures (RPMs) with terms and conditions stated below or incorporated by reference are necessary and appropriate to minimize the incidental take for ongoing actions and may be relevant for future actions to be appended to this biological opinion. In order to be exempt from the prohibitions of section 9 of the Act,

NNSA/NSO must comply with RPMs as implemented by terms and conditions. For future actions to be appended to this biological opinion, terms and conditions will be provided at the project-level consultation and are non-discretionary. Terms and conditions will be based on measures proposed by NNSA/NSO in this document. Where proposed measures or decisions vary from measures in this biological opinion, measures in this biological opinion shall take precedence.

The measures below may not apply to all future actions; they may apply with modification; and/or additional measures may be required when specific actions are proposed for appendage to this programmatic biological opinion. Measures under this incidental take statement shall apply towards future NNSA/NSO projects and activities within areas potentially occupied by desert tortoises as determined by desert tortoise surveys. The Service considers desert tortoise sign in a project action area as an indicator that desert tortoises potentially or likely occur there.

RPM 1: *NNSA/NSO shall ensure implementation of measures to minimize injury and mortality of desert tortoises as a direct or indirect result of projects and activities within the range and habitat of the desert tortoise including capture and handling of desert tortoises.*

Terms and Conditions:

1.a. NNSA/NSO biologists shall review all proposed activities within the range of the desert tortoise and within desert tortoise habitat on the NTS that may result in adverse effects to the desert tortoise. Whenever possible, NNSA/NSO will modify the design or location of a project if determined it may result in the incidental take of a desert tortoise.

1.b. An authorized desert tortoise biologist or environmental monitor may be required to be onsite during project construction when the project is located within desert tortoise habitat to ensure that construction activities will not inadvertently harm desert tortoises. Authorized biologists shall ensure that all monitors associated with the project are skilled and experienced to a level that ensures they are capable of successfully implementing the protective measures (terms and conditions) of this biological opinion. The authorized biologist will be responsible for approving monitors or other personnel that may assist the biologist. Potential authorized biologists shall complete the Qualifications Form (Appendix B) and submit it to the Service for review and approval as appropriate. Allow 30 days for Service review and response.

1.c. All NNSA/NSO and contractor personnel working on the NTS in tortoise habitat will complete the Desert Tortoise Conservation Education Program. The program provides information relative to the occurrence of the desert tortoise on the NTS, the threatened status of the species, the definition of "take," the potential for

1.i. All desert tortoises and desert tortoise eggs will be relocated 300 to 1,500 feet into adjacent undisturbed habitat. A pair of new, disposable latex gloves will be used for each tortoise that must be handled. After use, the gloves will be properly disposed. Tortoises found aboveground will be placed under a marked bush in the shade. A tortoise located in a burrow will be placed in an existing unoccupied burrow of the same size and orientation as the one from which it was removed. If a suitable natural burrow is unavailable, an authorized biologist will construct one of the same size and orientation as the one from which it was removed. The construction method will adhere to the protocol for burrow construction (Desert Tortoise Council 1994, revised 1999). Any tortoise found within one hour before nightfall will be placed individually in a clean cardboard box and kept overnight in a cool, predator-free location. To minimize stress to the tortoise, the box will be covered and kept upright. Each box will be used only once and will then be discarded. The tortoise will be released the next day in the same area from which it was collected and placed under a marked bush in the shade. Each tortoise moved shall be identified by distinguishing marks, photography, or temporary mark to facilitate reporting multiple captures and movement of the same animal.

1.j. Desert tortoises shall be treated in a manner to ensure that they do not overheat, exhibit signs of overheating (*e.g.*, gaping, foaming at the mouth, *etc.*), or are placed in a situation where they cannot maintain surface and core temperatures necessary to their well-being. Desert tortoises shall be kept shaded at all times until it is safe to release them. No desert tortoise shall be captured, moved, transported, released, or purposefully caused to leave its burrow for whatever reason when the ambient air temperature is above 95°F; an exception would be the need to capture a desert tortoise in imminent danger such as in the road. Ambient air temperature shall be measured in the shade, protected from wind, at a height of 2 inches above the ground surface. No desert tortoise shall be captured if the ambient air temperature is anticipated to exceed 95°F before handling and relocation can be completed. If the ambient air temperature exceeds 95°F during handling or processing, desert tortoises shall be kept shaded in an environment that does not exceed 95°F and the animals shall not be released until ambient air temperature declines to below 95°F, which may require holding the tortoise overnight and releasing it the following morning.

1.k. Open trenches, stockpiled pipes, and excavations that pose a threat or potential to entrap or injure tortoises will be capped; temporarily fenced; and/or escape ramps installed. Any excavated holes left open overnight will be covered, and/or tortoise-proof fencing will be installed to prevent the possibility of tortoises falling into the open holes.

1.l. Project personnel shall exercise caution when commuting to the project area and obey speed limits to minimize any chance for the inadvertent injury or mortality of species encountered on roads leading to and from the project site. All desert

The fee will be assessed at the rate of $753 per acre of disturbance. These fees will be indexed for inflation based on the Bureau of Labor Statistics Consumer Price Index for All Urban Consumers (CPI-U). Information on the CPI-U can be found on the internet at: *http://stats.bls.gov/news.release/cpi.nr0.htm*. The next adjustment will occur on March 1, 2009.

The payments shall be accompanied by the attached Section 7 Fee Payment Form (Appendix C), and completed by the payee. The project proponent or applicant may receive credit for payment of such fees and deduct such costs from desert tortoise impact fees charged by local government entities. NNSA/NSO may propose projects on the NTS and request section 7 funding for such projects if approved by the Service. Payment shall be by certified check or money order payable to Clark County and delivered to:

Clark County Desert Conservation Program
Dept. of Air Quality and Environmental Management
Clark County Government Center
500 S. Grand Central Parkway, first floor (front counter)
Las Vegas, Nevada 89106
(702) 455-3536

The NNSA/NSO habitat reclamation plan (DOE 2004) was approved by the Service that describes the methods of stabilizing and revegetating sites. Successful habitat reclamation may serve as an alternative to payment into the section 7 account through a refund of fees to ensure no net loss of habitat as a result of the project. The goals of reclamation will be to minimize soil loss and to restore native vegetative cover to approximately match surrounding native land. Once the Service concurs that reclamation is successful, the appropriate amount of fees shall be credited to NNSA/NSO.

RPM 4: *NNSA/NSO shall ensure implementation of measures to ensure compliance with the reasonable and prudent measures, terms and conditions, reporting requirements, and reinitiation requirements contained in this biological opinion.*

Terms and Conditions:

4.a. For projects, an authorized biologist will record each observation of handled desert tortoises. Data will be collected, including: location, date, time of observation, whether the tortoise was handled, the general health of the tortoise, whether it voided its bladder, the location the tortoise moved from and the location it moved to, and any unique physical characteristics. The authorized biologist shall also include the names of all monitors approved for the project, and the activities and level of involvement during the project. NNSA/NSO will continue to report numbers and locations of desert tortoises moved off NTS roads.

4.b. NNSA/NSO will prepare an annual report and submit the report to the Service by January 31 of the following year. The first annual report for this biological opinion will be due January 31, 2010. The report will include the information in Term and Condition 4.a and the project title of each appended action; date project began and ended; actual number of acres disturbed; remuneration fees paid; number of acres rehabilitated; and number of tortoises taken, which includes capture and displacement, killed, injured, and harassed by other means, during project activities.

E. Closing Paragraph

The Service believes that no more than 22 desert tortoises will be incidentally killed or injured over the 10-year period of this consultation as a result of NNSA/NSO activities on the NTS. In addition, the Service estimates that up to 194 desert tortoises may be taken by non-injury or non-lethal means, and up to 2 tortoise nests with eggs per year may be excavated and relocated, or incidentally destroyed if not found during clearance surveys. No more than 2,710 acres of desert tortoise habitat are anticipated to be disturbed.

The reasonable and prudent measures, with their implementing terms and conditions, are designed to minimize the impact of incidental take that might otherwise result from the proposed actions. If, during the course of the actions, this level of incidental take is reached and anticipated to be exceeded, such incidental take represents new information requiring reinitiation of consultation and review of the reasonable and prudent measures provided. NNSA/NSO must immediately provide an explanation of the causes of the taking, and review with the Service the need for possible modifications of the reasonable and prudent measures.

F. Reporting Requirements

Upon locating a dead or injured endangered or threatened species, initial notification must be made to the Service's Nevada Fish and Wildlife Office in Las Vegas at (702) 515-5230. Care should be taken in handling sick or injured animals to ensure effective treatment and care or the handling of dead specimens to preserve biological material in the best possible state for later analysis of cause of death.

In conjunction with the care of sick or injured desert tortoises or preservation of biological materials from a dead animal, the finder has the responsibility to carry out instructions provided by the Service to ensure that evidence intrinsic to the specimen is not unnecessarily disturbed.

Injured desert tortoises shall be delivered to any qualified veterinarian for appropriate treatment or disposal. Dead desert tortoises suitable for preparation as museum specimens shall be frozen immediately and provided to an institution holding appropriate Federal and State permits per their instructions. Should no institutions want the desert tortoise specimens, or if it is determined that they are too damaged (crushed, spoiled, etc.) for preparation as a museum specimen, then

they may be buried away from the project area or cremated, upon authorization by the Service. NNSA/NSO shall bear the cost of any required treatment of injured desert tortoises, euthanasia of sick desert tortoises, or cremation of dead desert tortoises. Should sick or injured desert tortoises be treated by a veterinarian and survive, they may be transferred as directed by the Service.

CONSERVATION RECOMMENDATIONS

Section 7(a)(1) of the Act directs Federal agencies to use their authorities to further the purposes of the Act by carrying out conservation programs for the benefit of endangered and threatened species. Conservation recommendations are discretionary agency activities to minimize or avoid adverse effects of a proposed action on listed species or critical habitat, to help implement recovery plans, or to develop information. The Service hereby makes the following conservation recommendation:

> *NNSA/NSO should develop a strategy to minimize road mortalities on the NTS by focusing efforts on roads that have a history of mortality or that traverse higher density desert tortoise areas.*

In order for the Service to be kept informed of actions that either minimize or avoid adverse effects or that benefit listed species or their habitats, the Service requests notification of the implementation of any conservation recommendations.

REINITIATION REQUIREMENT

This concludes formal consultation on the actions outlined in your July 2, 2008, request. As required by 50 CFR § 402.16, reinitiation of formal consultation is required where discretionary Federal agency involvement or control over an action has been retained (or is authorized by law) and if: (1) The amount or extent of incidental take is exceeded; (2) new information reveals effects of the agency action that may affect listed species or critical habitat in a manner or to an extent not considered in this opinion; (3) the agency action is subsequently modified in a manner that causes an effect to the listed species or critical habitat that was not considered in this opinion; or (4) a new species is listed or critical habitat designated that may be affected by the action. In instances where the amount or extent of incidental take is exceeded, any operations causing such take must cease pending reinitiation.

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APPENDIX A. REQUEST TO APPEND AN ACTION TO THE PROGRAMMATIC BIOLOGICAL OPINION (FILE NO. 84320-2008-F-0078)

Name of Action: Date:

Requested by:
Title:
Agency/Office
Phone No.

Species Affected:

Critical Habitat Affected: Yes ❑ No ❑

I. Description of Action and Action Area (include map)

A. Habitat quality/suitability:

B. Surveys or assessments conducted:

II. Measures Proposed to Minimize the Effects of the Proposed Action

A. Recommendations for future programmatic actions:

III. Effects of Proposed Action on the Listed Species

A. No. of acres and plant communities disturbed:

B. Description of affected individuals of listed species:

C. Assessment of habitat rehabilitation recommended:

D. Are there additional effects of the action not considered in the programmatic biological opinion? If so, describe.

APPENDIX B. GENERAL DESERT TORTOISE QUALIFICATIONS STATEMENT

This form should be used to provide your qualifications to agency officials if you wish to undertake the duties of an authorized biologist with regard to desert tortoises during construction or other projects authorized under Sections 7 (Biological Opinions) or 10(a)(1)(B) (i.e. Habitat Conservation Plans) of the Endangered Species Act.

(If you seek approval to attach/remove/insert any devices or equipment to/into desert tortoises, withdraw blood, or conduct other procedures on desert tortoises, a recovery permit or similar authorization may be required. Application for a recovery permit requires completion of Form 3-200-55, which can be downloaded at http://www.fws.gov/forms/3-200-55.pdf.)

1. Contact Information:

Name	
Address	
City, State, Zip Code	
Phone Number(s)	
Email Address	

2. Date:

3. Areas in which authorization is requested (check all that apply):

□ San Bernardino, Kern, and Los Angeles Counties, California (Ventura office)
□ Riverside and Imperial Counties, California (Carlsbad office)
□ Nevada □ Utah □ Arizona

4. Please provide information on the project:

USFWS Biological Opinion or HCP Permit No.		**Date:**
Project Name		
Federal Agency		
Proponent or Contractor		

5. If you hold, or have held, any relevant state or federal wildlife permits provide the following:

Species	Dates	State (specify) or Federal Permit Number	Authorized Activities

6. Education: Provide up to three schools, listing most recent first:

Institution	Dates attended	Major/Minor	Degree received

7. Desert Tortoise Training.

Name/Type of Training	Dates (From/To)	Location	Instructor/Sponsor
1. Classes			
2. Field Training			
3. Translocation			
4.			

8. Experience – Include only those positions relevant to the requested work with desert tortoises. Distinguish between Mojave desert tortoise and other experience. Include only your experience, not information for the project you worked on (e.g., if 100 tortoises were handled on a project and you handled 5 of those tortoises, include only those 5. List most recent experience first. Handling a Mojave desert tortoise must be authorized by a Biological Opinion or other permit and reported to the USFWS. Information provided in this section will be used by the USFWS to track the numbers of tortoises affected by previous projects (baseline). **Be sure to include a project supervisor or other contact that can verify your skills and experience in relation to your job performance.** Attach additional sheets as necessary.

Experience by project and activity:

Project Name, Job Title, Dates	Project Contact name, phone no., & Email address	Conduct Clearance Surveys (Hrs/Days)	Excavate DT burrows (No.)	Locate DT No. < 100mm ≥100mm	Relocate DTs (No.)	Excavate, and relocate DT nests (No.)
1.						
2.						
3.						
4.						
5.						
6.						
7.						
8.						
9.						

Experience by project and activity (continued): Each project number should correspond with the project listed on the previous page

Project Number (Corresponds to previous page)	Construct Artificial Burrows (No.)	Monitor project equipment and activities (Hrs/Days)	Oversee project compliance (Hrs/Days)	Supervise field staff (Hrs/Days)	DT fence Installation and inspection (Hrs/Days)	Present DT Awareness Training (No.)
1.						
2.						
3.						
4.						
5.						
6.						
7.						
8.						
9.						

Summary of experience:

Total time spent for all desert tortoise-related field activities (referenced above):
Specify total number of hours
OR total number of 8-hour days: _____

Total number of miles/kilometers walked conducting survey transects:

Total number of wild, free-ranging desert tortoises you personally handled:

<100 mm: _____

≥100 mm: _____

I certify that the information submitted in this form is complete and accurate to the best of my knowledge and belief. I understand that any false statement herein may subject me to the criminal penalties of 18 U.S.C. Ch.47, Sec. 1001.

Signed: _____ **Date:** _____